MEMORANDUM FOR: Distribution

FROM: W/OPS2 - /s/ Douglas F. Hess

SUBJECT: AWIPS Router Replacement Operational Acceptance Test Plan, September 2004

The attached plan describes how the National Weather Service (NWS) will conduct an Operational Acceptance Test (OAT) of the Advanced Weather Interactive Processing System (AWIPS) Router Replacement. The Router Replacements will replace the legacy routers with newer ones at the Warning Forecast Offices (WFO), River Forecast Offices (RFC), and regional headquarters AWIPS except in Hawaii. The plan describes the equipment, OAT sites, personnel and resource requirements, methodology, schedule, and reporting. The Router Replacement is part of the ongoing tasks to improve AWIPS performance and security and to address AWIPS life cycle support.

There are two participating sites during a two-week period, from mid to late September 2004. They are WFO and RFC State College, PA and WFO Mount Holly, NJ.

Mary Buckingham, W/OPS24, is the OAT director. Questions or comments should be directed to Mary by e-mail at Mary.Buckingham@noaa.gov, facsimile 301-713-0912, or telephone 301-713-0326 x137.

Attachment

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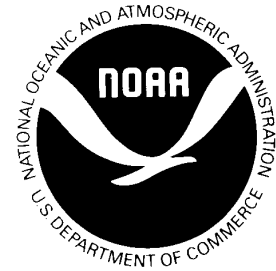W/ER3 - K. Johnson
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AWIPS Router Replacement
Operational Acceptance Test Plan

September 2004

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service/Office of Operational Systems
Field Systems Operations Center/Test and Evaluation Branch
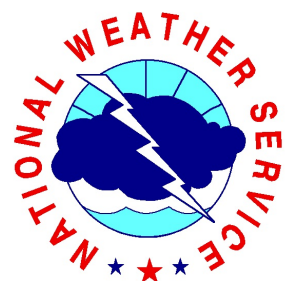
Executive Summary

This plan defines the method the National Weather Service (NWS) will use to conduct an Operational Acceptance Test (OAT) of the Advanced Weather Interactive Processing System (AWIPS) Router Replacement. The plan describes the equipment, OAT sites, personnel and resource requirements, methodology, schedule, and reporting.

The purpose for this OAT is to provide information to NWS management about the AWIPS Router installation process, operational performance, maintenance impact, and reliability. The OAT will provide NWS management with data on the performance of the AWIPS Router in routine operational use at two field offices for a two-week period, from September 15 to 30, 2004.

The new routers will replace the old ones and will be configured and used in normal operations for the duration of the OAT. During the OAT, the Product Availability Monitoring System (PAMS) will collect product throughput data from the two OAT sites to assess the reliability and throughput of the products. Operators or technicians will note problems in logs and contact the AWIPS Network Control Facility (NCF) for problem resolution. The new router hardware will be covered by contract maintenance with the vendor and a small pool of spares at the National Logistics Support Center (NLSC).

The NWS Office of Science and Technology (OST) Systems Engineering Center (SEC) manages the program for the AWIPS router replacement project. The NWS Office of Operational Systems (OOS) Test Evaluation Branch (TEB) will coordinate the OAT and document the OAT results in a AWIPS Router Replacement OAT Report provided to NWS management.

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ATTACHMENTS

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Acronyms

AWIPS	Advanced Weather Interactive Processing System
CIO	Chief Information Officer
CTP	WFO/RFC State College, PA
EHB-4	Engineering Handbook No. 4
FSOC	Field Systems Operations Center
HIC	Hydrologists-in-Charge
MIC	Meteorologists-in-Charge
NCF	Network Control Facility
NGIT	Northrop Grumman Information Technology, Inc.
NLSC	National Logistics Support Center
NWS	National Weather Service
NWSTG	NWS Telecommunication Gateway
OAT	Operational Acceptance Test
OOS	Office of Operational Systems
OPS12	OOS Maintenance Branch
OST	Office of Science and Technology
PAMS	Product Availability Monitoring System
PHI	WFO Mount Holy, NJ
RFC	River Forecast Center
SEC	Systems Engineering Center
SID	Site Identification
SSH	Secure Shell
TEB	Test and Evaluation Branch
WFO	Weather Forecast Office

PART I: OAT Overview

1.0 Introduction

This plan defines the method by which the National Weather Service (NWS) will conduct an Operational Acceptance Test (OAT) of the Advanced Weather Interactive Processing System (AWIPS) Router Replacement. The plan presents the OAT objectives, methodology, management, material resources, and schedule. The roles and responsibilities of NWS personnel in selecting OAT sites, configuring them, and operating the new AWIPS Routers are also identified. The OAT will validate the operational use of the AWIPS Routers at one Weather Forecast Office (WFO) and one collocated WFO and River Forecast Center (RFC).

2.0 Purpose

The OAT for the AWIPS Routers will provide NWS management with information about the installation process and the operational and maintenance impact, performance, and reliability of the new hardware at a representative sample of NWS offices over a two-week period. It is also intended to aid in improving the installation process to reduce the adverse impact on field operations.

3.0 OAT Objectives

The OAT objectives are:

a. Verify the AWIPS Router Installation Instructions allow the replacement and configuration of the routers with a minimum of disruption to the site data flow and operations.

b. Verify the new AWIPS Routers operate reliably during site operations in a two-week demonstration at two sites.

c. Verify product and data throughput from the new AWIPS Router are as fast or faster than from the existing AWIPS Routers.

d. Verify product and data throughput from the new AWIPS Routers are as reliable as from the existing AWIPS Routers.

e. Verify the AWIPS can be switched to its backup configuration and support the site's data needs.

4.0 Background

4.1 Router Description

Routers are devices to connect two networks together. The new routers must not degradate the communication capability of the existing AWIPS systems and the installation must not negatively impact on site operations.   The new routers are expected to increase performance but increased performance is not required.

The current AWIPS Routers are being replaced for the following reasons:

1. The Chief Information Officer (CIO) has mandated usage of secure shell (SSH) in AWIPS communications. The old routers are SSH incompatible because they do not have enough memory for the requisite software upgrade.

2. The old routers are nearing their end of life and approaching unsupportability.

4.2 PAMS Description

The Product Availability Monitoring System (PAMS) is used to quantify the effectiveness of the AWIPS communication networks in delivering weather-related products from data sources to field sites, as well as from field sites to field sites. Product logs are collected daily from all the AWIPS commissioned sites, the NWS Telecommunication Gateway (NWSTG), and the Network Control Facility (NCF), and additional data sources depending on the test and evaluation needs. PAMS processes and evaluates the large volume of products flowing through the AWIPS systems. PAMS produces several reports daily, analyzing the previous 24-hour period. The PAMS reports provide information about invalid products, missing products, and delayed products. Together, the reports portray the product throughput in both a quantitative and qualitative manner. The PAMS server generates the reports automatically at night so they are available every day.   The reports can be combined to produce detailed analyses of the NWS communication system performance.

5.0 OAT Policies

The following terms and conditions will be adhered to in the oversight of the OAT.

5.1 OAT Assumptions and Limitations

a. No AWIPS baseline software changes are needed for the router replacement.

b. Northrop Grumman Information Technology, Inc. (NGIT) Installation Instructions to be provided to the OOS Maintenance Branch (OPS12) by August 4, 2004 (completed).

c. A NGIT engineer will be available for technical assistance at the test sites.

d. The NWS NCF will provide 24-hour a day, 7 days a week support for the AWIPS Routers and will track problems with trouble tickets.

e. The NWS staff will replace routers at WFOs, RFCs, and regional headquarters sites only. All other sites including the routers in all Hawaii sites will be replaced by NGIT personnel.

5.2 OAT Commencement and Prerequisites

The OAT will begin after the OAT Director (see Section 6.0) verifies the following prerequisites are met:

a. The OAT Plan is completed and signed by the Office of Operational Systems (OOS), Director, Field Systems Operations Center (FSOC) in coordination with the Office of Science and Technology (OST) AWIPS Router Replacement Project Manager, and the AWIPS Regional focal points.

b. The new routers must be received at each site along with the AWIPS System Modification Notes (Mod Note) prior to the OAT.

c. The OAT sites must not install the new routers until approval by the WSH OAT Director.

5.3 Site Installation

At all OAT sites, the AWIPS Router Replacement equipment installations are performed by the NWS site personnel using the AWIPS System Modification Note. The OAT site personnel will remove the existing routers, install the new routers, contact the NCF for configuration, and make the required connections.

5.4 OAT Conduct and Duration

The OAT conduct will follow the AWIPS Router Replacement OAT Plan, Part II, Section 3.0, OAT Methodology and Section 5.0, OAT Schedule. PAMS will be used to monitor and evaluate the AWIPS Routers during the installation and in normal operations during a two-week period.

The OAT site WFO Meteorologists-in-Charge (MICs), and RFC Hydrologists-in-Charge (HICs) have the authority to suspend the OAT at their site if, at any time, the site service operations are negatively affected. They will notify the OAT Director of this decision and why it was made as soon as practical.

OAT site personnel will log AWIPS Router Replacement problems and notify the NCF as soon as possible. They will also notify the OAT Director of problems by e-mail as soon as practical. Any problem deemed critical during the OAT will be a reason to suspend the OAT. After the installation, the sites should see no difference in the performance of their system. Remote monitoring by the PAMS tool will be performed from WSH.

5.5 System Operation

The AWIPS Routers will be operated 24 hours a day, 7 days a week during the OAT. OOS Test and Evaluation Branch (TEB) will operate PAMS 24 hours a day, 7 days a week, collecting data and producing reports during the two-week OAT.

5.6 System Support

If maintenance is required, site personnel must contact the AWIPS NCF. AWIPS problem resolution and maintenance are centralized at the NCF. The NCF will have monitor and control responsibility for the AWIPS Router Replacement. When a fault or problem is discovered by NCF personnel or is phoned into the NCF Help Desk, the problem will be diagnosed by the NCF operators and resolution coordinated with the NWS site representative, if necessary. Often, the NCF can discover problems and correct them without requiring coordination with the site. The NCF generates a trouble ticket to document and track the problem.

6.0 OAT Management

These sections describe the roles and responsibilities of the NWS in the oversight and management of the OAT. The NWS OOS TEB has overall responsibility for coordinating the AWIPS Router Replacement OAT. The OST Systems Engineering Center (SEC) has overall project management responsibility for the AWIPS Router Replacement project.

6.1 National Weather Service Headquarters

OAT Director - (OOS TEB, Mary Buckingham, 301-713-0326 x137) Organizes and manages the NWS personnel supporting the OAT. Documents and coordinates for signature the NWS involvement in the OAT in a formal OAT Plan. Coordinates conference calls and manages the day-to-day OAT data collection, including PAMS, collecting the data and creating the required reports. Documents the results in the OAT Report and provides briefings as required.

AWIPS Router Replacement Project Manager - (OST SEC, Phil Craig, 301-713-1570 x134) Reviews the AWIPS Routers OAT Plan and Report. Participates in the OAT as a AWIPS Router technical resource. The OST SEC has overall engineering responsibility for the project. This includes the development of the target hardware architecture for the routers, by the Architecture and Analysis Branch and any required changes to the AWIPS software by the SEC Development Branch.

NGIT Engineering Support - (NGIT, Dale Hutchinson) Provides expert assistance in all installation and operational aspects of the new routers.

OAT Team - Supports the OAT director in coordinating and managing the OAT activities. Contributes to the writing and review of plans, reports, and conference call minutes and provides input to the OAT Director. The members include personnel from OST, and OOS (see Attachment 4, Table A4-1).

AWIPS Router Replacement Support - The NCF will provide support to field site users if problems develop. ***Operators must report all AWIPS Router problems to NCF at 301-713-9344.***

6.2 NWS Regional Headquarters

Regional Headquarters will participate in the development and review of the OAT Plan and will monitor developments at their respective sites during the OAT. Specifically, the Regional AWIPS Focal Points or designees will:

a. Review and coordinate the proposed OAT sites to comment on their availability and suitability.

b. Coordinate requirements for site preparation, equipment installation, operations and reporting with other members of the OAT site management team.

c. Identify NWS points of contact for each OAT site.

6.3 NWS OAT Sites

The OAT sites will:

a. Identify an AWIPS Routers focal point (see Table A4-2) to coordinate the system installation and complete the Installation Evaluation in Attachment 1.

b. Remove the site's existing AWIPS Routers and install and configure the new Routers after the OAT Director informs the sites to begin.

c. Use the new AWIPS Routers in operations during the OAT, documenting problems or difficulties to operations arising from the new routers' use.

d. Perform the failure simulation procedure to test the failover capabilities of the new Routers (Attachment 2)

e. Document all maintenance activity associated with this OAT plan by the EMRS Data Entry System. Follow the specific guidance for maintenance activity documentation noted in the Mod Note.

PART II: OAT Methodology

1.0 Introduction and Approach

The AWIPS Router Replacement OAT evaluates the new system for two weeks at two field sites. The site personnel will install the hardware and any required software. PAMS will collect data on the overall system performance during the OAT. At the end of the OAT period, TEB will analyze the PAMS data to develop conclusions about the new Routers' performance. The conclusions, along with information from the NCF, and the installation will support the recommendations for the AWIPS Router Replacement full deployment decision briefings.

2.0 OAT Sites

Two test sites were chosen to demonstrate the capability of the new AWIPS Routers. Table 1 lists the sites participating in this OAT and their site identification (SID) code. Each OAT site will designate a Focal Point to communicate with the OAT Team from the WSH and to be responsible for the conduct of the OAT at the site. A complete listing of the sites' addresses, telephone numbers, and focal points are given in Attachment 4, Table A4-2, OAT Sites. Only two sites are needed because only two types of installations will be performed by the sites. The other router types will be installed directly by the NGIT personnel with no required action by NWS personnel.

Table 1. OAT Sites		
Region/NCEP	**Office**	**SID**
Eastern	WFO/RFC State College, PA	CTP
	WFO Mount Holy, NJ	PHI

3.0 OAT Methodology

The AWIPS Router Replacement evaluation will focus primarily on two aspects:

1) the removal of the old Routers and installation of the new Routers, and
2) the product and data throughput of the new Routers compared to the old Routers.

Because the Router Replacement substitutes critical hardware and software in the AWIPS data stream, the installation must be done smoothly and quickly at each AWIPS site to prevent a large loss of data. The installation is estimated to take two to four hours at single WFO sites and four to six hours at collocated sites to complete. The installation should not affect data collection or transmission at the sites.

Once the new Routers are installed, the evaluation will use the PAMS tool to analyze the reliability and timeliness of products passing through the Routers to the Communication

Processors (CPs). This will be accomplished by collecting and analyzing the CP product logs from the test sites and the AWIPS NCF on a daily basis. The PAMS tool was installed on the test sites and control sites approximately one month prior to the beginning of the OAT to form a basis of comparison to the subsequent Router Replacement performance.

The OAT will be conducted by the WSH and NGIT OAT team and the test site personnel with required contacts by telephone and electronic mail. The OAT methodology consists of the activities in Section 5, Table 3, OAT Activities and Schedule.

A NGIT engineer is included in the on-site test team because the communication structure and connections at the field sites are significantly different than they are at all test beds. The NGIT engineer will ensure any unforseen problems are addressed and fixed immediately and the Mod Note is updated accordingly.

3.1 OAT Documentation

The documentation required for the OAT includes:

1. Installation Evaluation (See Attachment 1); to be completed by the person(s) who performed the installation and checkout. The site personnel are requested to provide comments about the questions on both their positive and negative experiences. Suggestions for improvement are encouraged. The completed evaluation questionnaire can be faxed to 301-713-0912 or the answers emailed to mary.buckingham@noaa.gov.

2. Document any problems encountered or impacts on site operations, and improvement suggestions. Site logs or email may be used (fax paper to 301-713-0912; send emails to Mary.Buckingham@noaa.gov, Khien.Nguyen@noaa.gov).

3. EMRS reporting (see Attachment 3)

3.2 System Installation

The OAT sites will receive the new Routers and System Modification Notes shortly prior to commencement of the OAT (see Part I, Section 5.2, item c). The OAT sites may open the boxes to ensure all expected components arrived, but **must not install the system until the OAT Director authorizes them to start and the WSH test team has arrived on site**.

Once given the instruction to start the OAT, the personnel at the first site will begin installation, following the AWIPS System Modification Note with the test team observing. The sites will disconnect one of the existing Routers and remove it. Operations will continue on the remaining old router. They then will install and configure the new Router. Once it is verified as operating correctly, the communication will be transferred to it and the second old router will be replaced.

The OAT sites will evaluate the AWIPS System Modification Note and determine whether it needs modification. Immediately after successfully completing the installation, the site personnel will complete the Installation Evaluation. Because the installation replaces a critical element of the AWIPS communication, the installation must be carefully evaluated.

3.3 Router Replacement Evaluation Methodology

The Router Replacement evaluation will consist of site actions and remote monitoring of the new Router performance by the PAMS tool.

3.3.1 Test Site Actions

The test sites should keep track of any system crashes or anomalies they might see during the evaluation and report them to the OAT director. The replacement of the Routers should not affect other aspects of the AWIPS system.

To ensure seamless operations at the test sites, perform the procedure in (Attachment 2) shortly after the installation to simulate a Router failure scenario. This will evaluate how well the backup performs in the event of a failure of the Routers.

Complete the Installation Evaluation in Attachment 1 and return to WSH (Section 3.1, item 1).

3.3.2 PAMS Evaluation

The following summarizes the data throughput evaluation method:

1. For about 1 month prior to the operational test, PAMS will monitor the performance of the existing Routers at the two test sites to obtain baseline performance statistics. Subsequently, these sites will be replaced with the new Routers for the evaluation.

2. During the test, PAMS will monitor the performance of the new Routers and compare these results with those obtained in item 1, above.

3. PAMS will also monitor the performance of a WSH AWIPS System (NHOW) prior to and during the upgrade of the two test sites. This will provide a direct comparison of the data throughput between the new Routers and the existing Routers, using the identical data streams.

A script to collect CP product logs was developed and throughly tested prior to being deployed at each test site. It will be executed by a cron at each test site to send the CP acquisition logs to the NOAA1 Server located at the WSH. These logs will be analyzed to provide daily statistical results on the reliability and timeliness of the Router/CP combination.

3.4 Maintenance Data Collection

The OAT does not have a sufficient length of time or track enough sites to provide a statistically valid maintenance analysis, but the problems noted and system outages will be reported as indicators of the stability of the new AWIPS Routers. **All problems must be called to the NCF for tracking purposes and to ensure they are entered into the discrepancy report data base when appropriate.** The NCF will be asked to provide copies of the trouble tickets opened on the Router Replacement during the OAT to the test team for evaluation.

EMRS will collect maintenance data on the new Routers equipment. The NWS electronics staff must document all maintenance activity on the new Routers in accordance with the instructions outlined in Attachment 3 and in the Engineering Handbook No. 4 (EHB-4).

4.0 OAT Materials

The following equipment and materials are required for the AWIPS Routers OAT:

a. <u>AWIPS Router Replacement hardware and software</u> - The required equipment as described in Section 4.1 - Part I, System Description and Configuration.

b. <u>AWIPS System Modification Note 23</u> - Used to install and configure the new Routers.

c. <u>AWIPS Router Replacement OAT Plan</u> - Used to ensure the uniform conduct and completion of the OAT and as a source of contact points for coordination.

d. <u>AWIPS Router Replacement Installation Evaluation</u> - Used to gather input from the site personnel about how difficult and time-consuming the Routers installation was (see Attachment 1).

5.0 OAT Schedule

The OAT schedule includes two weeks of AWIPS Router Replacement installation and use. Table 3 lists the tentative dates of the major OAT milestones. The installation schedule may change depending on the problems encountered and the time needed to correct the Mod Note.

Table 3. OAT Activities and Schedule		
Preparation	Time Frame	Scheduled Date
1. PAMS scripts set up on all test sites. Begin monitoring of CP data reliability and timeliness.	1 Month prior to start	August
2. Ship equipment to Demo sites	week prior to start	September
Installation and Evaluation	Weeks 1-3	
3. First site installs AWIPS Routers and completes Installation Evaluation. Ensure PAMS scripts are operating. Run failover procedure.	Day 1	Sep 15
4. Second site installs AWIPS Routersand completes Installation Evaluation. Ensure PAMS scripts are operating. Run failover procedure	Day 4	Sep 17
5. Mod Note correction.	Day 5	August
Operations	Week 2	
6. Sites operate with new routers for 2 weeks, PAMS data monitoring continues. Sites send problems by email. Conference calls held if needed.	Week 2	Sep. 18-29

Data Analysis and Reporting		Weeks 10-18	
7.	WSH OAT Team analyzes PAMS data and creates draft OAT Report	Weeks 3-7	October

PART III: OAT Reporting

1.0 Introduction

This section describes the OAT data analyses and reporting.

2.0 Reports

If critical AWIPS Router problems occur, interim reports will be distributed immediately by e-mail to document the issues and the impacts on the field or on data distribution. The AWIPS Router Replacement OAT Report, containing OAT details, will be coordinated and distributed within 60 days after the end of the OAT.

3.0 Data Analyses

OOS TEB will perform analysis of the PAMS data collected during the OAT. The data will be analyzed to provide information about the new Routers to support a decision whether to proceed with deployment of the new Routers in all sites and to identify problems and equipment outage periods. The analysis will be incorporated into the final OAT Report.

The NWS Configuration Management will collect and analyze the EMRS data collected. These data will be reported separately from the OAT Report.

4.0 Briefings

Briefings to NWS management will be provided as requested.

**Attachment 1 - AWIPS Communications Processor and High Speed LAN
Installation Evaluation**

Test Site Location:_____

1: What is your position title?
[ ] ESA
[ ] Electronic Technician
[ ] Lead Meteorologist
[ ]   Focal Point
[ ] Other_____

2: Rate the Routers/HSL hardware installation process:
[ ]   0=no answer
[ ]   1=very difficult
[ ]   2=somewhat difficult
[ ]   3=average
[ ]   4=easy
[ ]   5=very easy

Hardware installation process comments:

**3: How long did the complete hardware installation (AWIPS Routers removals and
the Routers/HSL installations) take?**

4: Rate the Routers software installation process:
[ ]   0=no answer
[ ]   1=very difficult
[ ]   2=somewhat difficult
[ ]   3=average
[ ]   4=easy
[ ]   5=very easy

Software installation process comments:

5: How long did the complete software installation take?

6: Were all the required Routers components provided in a timely manner?
[ ]   YES
[ ]   NO; Comments:

7: Rate the usefulness of the Engineering Modification Notes:
[ ]   0=did not use
[ ]   1=not useful
[ ]   2=somewhat useful
[ ]   3=adequate
[ ]   4=useful
[ ]   5=very useful

Comments:

8: Rate the ease of use of the Engineering Modification Notes:
[ ]   0=no answer
[ ]   1=very difficult
[ ]   2=somewhat difficult
[ ]   3=average
[ ]   4=easy
[ ]   5=very easy

Comments:

9: Was assistance from outside the office required during the installation?
[ ]   NO
[ ]   YES, **please list the outside contacts you made (e.g., Office or Person contacted from WSH, NCF, SST, Dell, other), and describe the problem with which you needed help and the solution given.**

10: How long did the complete software installation take?

11: How can the installation process be improved for full deployment?

12: Other comments about the installation of the AWIPS Routers.

Attachment 2 - Test Procedures

Router Back-Up

CONDUCTED BY: _____ DATE/TIME: _____ ITERATION: _____

Test state	Step No.	Test Step	Expected Results	Comments/ Observation	Pass Y/N
		A site disables acquisition on Router to stop receiving GOES data on the Communications Processor 2. Request the NCF to perform a failover process. Please note the time it took for the NCF to provide the support. This test also assesses the NCF's ability to swap the processor from the backup to the primary processor.			
	1	Click right mouse button and select **telnet**. login to DVBsbn1 as root **rlogin DVBsbn1-<site-id>** username: **root**	Xterm window is displayed. Enter the correct root password.		
	2	Click right mouse button and select **telnet**. login to DVBsbn2 as root **rlogin DVBsbn2-<site-id>** username: **root**	Xterm window is displayed. Enter the correct root password.		
	3	On DVBsbn1 enter: **acq_stats -k0 -k1 -i5**	The link0 line indicates NMC and the link1 line is unknown, indicating the NWSTG data are flowing on link0		
	4	On DVBsbn2 enter: **acq_stats -k0 -k1 -i5**	The link0 line indicates GOES and the link1 line is unknown, indicating the satellite data are flowing on link0		
	5	Disable router 1		The current time: _____	

Test state	Step No.	Test Step	Expected Results	Comments/ Observation	Pass Y/N
	6	Observe how long it takes for the NCF to notify the site of the failure and perform failover. Continue the test while waiting for the NCF to call.	The NCF notifies a site.	NCF's Response Time: _____	
	7	On DVBsbn1 enter: **acq_stats -k0 -k1 -i5**	The link0 line indicates NMC and the link1 line as GOES, indicating both satellite data and NWSTG data are flowing through SBN1.		
	8	On DVBsbn1 enter: **tail -f /awips/logs/Products/DVBsbn1-<site>/sbn_proc1/mDVBroduct.log**	The mDVBroduct.log updates with current data acquisition for GOES over the NWSTG Comms processor.		
	9	Log into ds1-<site> as fxa, enter: **logs** **tail -f Sat***	Satellite data is being acquired and processed from the NWSTG.		
	10	***Run on router 2 for at least 1 hour.*** Observe any symptoms of system instability or other problems while running on router 2.	No problems observed.		
	11	Restore router 1	The swap time is less than equal to 10 minutes.	NCF's response time: _____	
	12	On DVBsbn1 enter: **acq_stats -k0 -k1 -i5** On DVBsbn2 enter: **acq_stats -k0 -k1 -i5**	The link0 line indicates NMC and the link1 line is unknown, indicating the NWSTG data are flowing on link0. The link0 line indicates GOES and the link1 line is unknown, indicating the GOES data are flowing on link0.		
	13	Log into the DVBsbn2, enter: **tail -f /awips/logs/Products/DVBsbn2-<site>/sbn_proc0/mDVBroduct.log**	The mDVBroduct.log updates with current data acquisition for GOES over the GOES Comms processor.		

Test state	Step No.	Test Step	Expected Results	Comments/ Observation	Pass Y/N
	14	Log into as1-<site> as fxa, enter: **logs** **tail -f Sat***	Sat data is being acquired and processed.		
	15	Repeat test with router 2			
	16	End of Test.			

Witnessed: _____   Overall Outcome: [ ] Pass   [ ] Suspend   Date: _____

Refer to the AWIPS System Engineering Modification Note for details on EMRS reporting.

Attachment 4 - Contact Lists

<table>
<tr><td colspan="6" align="center">Table A4-1. AWIPS Router OAT Team</td></tr>
<tr><th>Name</th><th>Responsibility</th><th>Email Address</th><th>Org. Code</th><th>Telephone</th><th>Fax</th></tr>
<tr><td>Mary Buckingham</td><td>OAT Director</td><td>Mary.Buckingham@noaa.gov</td><td>OPS24</td><td>(301) 713-0326 x137</td><td>(301) 713-0912</td></tr>
<tr><td>Phil Cragg</td><td>Project Manager</td><td>Phil.Cragg@noaa.gov</td><td>OST31</td><td>(301) 713-1570 x124</td><td>N/A</td></tr>
<tr><td>Dale Hutchinson</td><td>NGIT Engineer</td><td>dale.hutchinson@ngc.com></td><td>NGIT</td><td></td><td></td></tr>
<tr><td>Jerald Dinges</td><td>Test & Evaluation Branch Chief</td><td>Jerald.Dinges@noaa.gov</td><td>OPS24</td><td>(301) 713-0326 x160</td><td>(301) 713-0912</td></tr>
<tr><td>Khien Nguyen</td><td>PAMS Support</td><td>Khien.Nguyen@noaa.gov</td><td>OPS24</td><td>(301) 713-0326 x177</td><td>(301) 713-0912</td></tr>
<tr><td>Jagdish Sharma</td><td>Maintenance Branch AWIPS Computer Specialist</td><td>Jagdish.Sharma@noaa.gov</td><td>OPS12</td><td>301-713-1833 x128</td><td>(301) 713-0964</td></tr>
<tr><td>Karthik Srinivasan</td><td>Maintenance Branch AWIPS Engineering Support</td><td>Karthik.Srinivasan@noaa.gov</td><td>OPS12</td><td>301-713-1892 x158</td><td>N/A</td></tr>
<tr><td>Eric Turner</td><td>NCF Focal Point</td><td>Eric.Turner@noaa.gov</td><td>AWIPS NCF</td><td>301-713-9344</td><td>N/A</td></tr>
<tr><td>John Merhi</td><td>EMRS</td><td>John.Merhi@noaa.gov</td><td>OPS13</td><td>(301) 713-1892 x200</td><td>N/A</td></tr>
</table>

* N/A = Not applicable

Send problems to the following (after calling the NCF):

or fax paper to: **301-713-0912**
or email to: Mary.Buckingham@noaa.gov
                          Khien.Nguyen@noaa.gov

<table>
<tr><td colspan="3" align="center">Table A4-2. OAT Site Contacts</td></tr>
<tr><th>Region</th><th>Office</th><th>Contact Points</th></tr>
<tr><td rowspan="2">Eastern</td><td>**WFO State College** **(CTP)**
North East RFC **(RAH)**
227 W Beaver Ave
State College, PA 16801-4819
(814) 234-9862</td><td>MIC: Bruce Budd
HIC: Peter Ahnert
ESA: Les Thario (ESA)
          Sue Bingham</td></tr>
<tr><td>**WFO Mount Holly** **(PHI)**
732 Woodlane Rd
Mount Holly, NJ 08060
(609) 261-6602</td><td>MIC: Gary Szatkowski   x222
ESA: Joe Byerly   x228</td></tr>
</table>